

### Abstract

A magnetic recording medium includes a magnetic recording layer composed of an L10 type ordered alloy at a low temperature. The magnetic recording layer of the L10 type ordered alloy exhibits high magnetic anisotropy energy  $K_u$  that is necessary for compatibility between improvement in thermal stability and reduction of noises. Specifically, the recording medium includes a nonmagnetic substrate, a nonmagnetic underlayer, a magnetic recording layer, a protective layer, and a liquid lubricant layer sequentially formed on the substrate. The magnetic recording layer is formed by alternately depositing an iron or cobalt layer having thickness in a range of 0.1 nm to 0.3 nm and a platinum layer having thickness of in a range of 0.15 nm to 0.35 nm repetitively. The magnetic recording layer is mainly composed of an alloy of FePt or CoPt that includes a region with an L10 type ordered structure.